Mountain. The probable choice for next July lies between Groton Pond, Lake Willoughby and one of the islands in Lake Champlain.

The winter meetings have all been held at the University of Vermont. The interest and attendance at these winter meetings has been surprisingly large. As is natural from the character and purpose of the organization, questions of systematic botany and plant distribution occupy the chief places on the winter programs. The papers are by no means confined to these subjects, however.

The last hour of the closing session was occupied by the annual roll-call; at this time each member is invited to respond with some crisp contribution, such as a report of some field observation, exhibition of a specimen, proposal of a problem for the club, etc. Some of these responses were among the most valuable and interesting features of the program.

Every member presenting a formal paper before the club, is expected to deposit, with the secretary, a written copy or abstract of such paper. In this way a rapid accumulation is taking place of contributions of much permanent value to students of botany in Vermont.

The club has had in mind from the beginning, the publication of catalogues showing the occurrence and distribution of Vermont plants. Dr. Grout's list of Vermont Mosses; Mr. Howe's of Vermont Hepaticae, and Mr. Orton's of the Parasitic Fungi, have already been printed. Dr. Burt has well in hand the study of the fleshy fungi. A committee of the club has been working upon a revision of the lists of the ferns and flowering plants of the state, and it is probable that this will soon be ready for publication, for which our thanks will be especially due to the skill and industry of our president.

UNIVERSITY OF VERMONT.

## A NEW MOSS FROM MT. DESERT ISLAND.



(Plate 5.)

Pottia Randii, Nov. SPEC. Autoica: flores masculi gemmiformes; copiose paraphysati. Folia octofaria, integra, inferiora dissita erecta, superiora conferta obovato- et elongato-oblonga; costa excedente cus-

pidata; subcarinata; mollia; margine inferiore revoluto e cellulis angustis unistratosis prosenchymatosis composito instructa. Capsula gymnostoma erecta vel suberecta ovata et oblonga leviter gibba, collo conspicuo; tandem plerumque subincurva; sub ore subobliquato non angustata. Annulus e triplici serie cellularum parvularum compositus, persistens. Hab. in lapillis maritimis. Mt. Desert, Maine, U. S. A.

Autoicous: Male flower gemmiform; radiculose; one to six antheridia with many paraphyses; antheridial leaves strongly nerved, toothed at apex, cells large; female flower with five or more achegonia and many (34 in one case) paraphyses. Perichaetial leaves smaller than the tufted ones, not toothed. Leaves octofarious, loosely disposed on lower part of stem and forming a rosette above; 3 to 5 mm. long by 1 mm. wide; oblong; entire; apiculate; margin revolute to above the middle; when young very chlorophyllose and in upper half carinate; when old cells empty and leaf flat; stem leaves erect, not

patent nor patulous.

Cells at base long rectangular, from .084 mm. x .024 mm. to .156 mm. x .036 mm.; above rounded hexagonal or rhomboidal, from .018 mm. x .021 mm. to .024 mm. x .042 mm. The rhomboidal cells at apex of leaf become narrowly rhomboidal at margin and are longer downwards until at point where revolute margin begins they are usually prosenchymatous long slender (1 x 8 to 10) cells forming the revolute margin of the leaf and at base becoming long and narrowly parenchymatous; smooth, in section near apex a few papillae occasionally seen. Costa stout, excurrent in a point of variable length; in section the costa is seen to be developed only on the lower side of the leaf, as in some Tortulas. Stem round; homogeneous; without central strand even in the leafy part.

Vaginule smooth; the unfertile archegonia with the paraphyses often bunched on one side of the vaginule as if one of the exterior archegonia was usually the fertilized one, and its growth left the others

in a bunch at one side.

Seta 7 to 10 mm. long; sometimes two from same tuft: yellowish red, with spots or short sections of a deeper reddish brown; when

very old deep brown.

Capsule 1.5 mm. to 2 mm. long by .62 mm. wide; oblong-oval, erect unequal, pachydermous; when very old sub-erect or slightly arcuate; not urceolate nor constricted below the mouth; from a reddish yellow to a deep brown color when fully ripe. No air space at base. Collum large with a single line of large stomata. Gymnostomous; mouth often oblique to the long axis. Annulus persistent, of three rows of very small cells. Operculum conical with a stout and often oblique beak. Calyptra smooth, light yellow with a dark brown apex, often falling with the operculum but the columella seldom attached. Spores yellow, papillose, ovate or rhomboidal-hexagonal seldom round; from .024 mm. to .035 mm. in longest diameter.

Plants to 15 mm. in height, caespitose or densely gregarious.

Hab. Among the stones in the sand by the seashore, Baker Island near Mt. Desert, Maine. Collected by E. L. Rand, July 15, 1898.

This very distinct moss is an interesting addition to the genus Pottia. The unequal capsule with oblique mouth, the conspicuous collum, and the evident border to the leaves are marked characteristics.

I first named it from Barnes' Key P. littoralis, Mitt. and sent specimens to Mr. Mitten for verification; he kindly returned me several specimens of P. littoralis and allied species, saying that this did not appear to agree with any of them, which fact was evident to me after looking at his P. littoralis.

I take pleasure in naming it for Mr. Rand whose work on the Flora of Mt. Desert is so well-known.

READVILLE, MASS.

EXPLANATION OF PLATE 5.—Pottia Randii: fig. 1, plant, natural size; fig. 2, plant, enlarged; fig. 3, calyptra; fig. 4, fruit; fig. 5, empty capsule; fig. 6, leaf; fig. 7, leaf showing areolation; fig. 8, antheridia; fig. 9, archegonia; fig. 10, cross-section of leaf. Figs. 2-10 are all enlarged.

# SOME ADDITIONS TO THE "FLORA OF MIDDLESEX COUNTY, MASSACHUSETTS."

### MABEL PRISCILLA COOK.

Four seasons of botanical work by Miss E. L. Shaw and the writer in the vicinity of Lexington, Mass., have shown how exhaustive was the work of Messrs. Dame and Collins and their associates in the preparation of the Flora. During this period only ten species of phaenogamous plants from the region of Lexington have been added to the county list; and new localities for species already listed have been so rarely found as to prove of considerable local interest. In the accompanying notes asterisks denote species not credited in the Flora to Middlesex County. In the remaining notes additional stations are given for some species rare or not reported as of general occurrence in the county. As far as possible, the nomenclature of the Synoptical Flora of North America has been followed.

\*Anemone Canadensis, L., has been found for several seasons in two distinct stations. A. cylindrica, Gray, occurs on a hill in the south of Lexington.

Nasturtium officinale, R. Br., is abundant in a ditch in Concord, and it has to be removed in cartloads from a brook in Lexington to prevent its blocking the stream and so flooding the meadows.

The Mustard Family in Lexington has been further augmented by Erysimum cheiranthoides, L., Sisymbrium altissimum, L., \*Brassica Japonica, Siebold, and B. oleracea, L. Cardamine parviflora, L. (C. hirsuta, L., var. sylvatica of the Flora), was found at Lake Walden.

Dianthus deltoides, L., is well established in Lexington, and D. Armeria, L., given in the Flora as rather scarce, is quite common in different spots.

\*Silene Armeria, L., by the roadside, is new.

Stellaria uliginosa, Murr., was found on the edge of the stream in Shaker Glen, and S. borealis, Bigel., is quite abundant in North Lexington.

\*Reseda lutea, L., was found in Lexington cemetery.

Malva moschata, L., and M. Alcea, L., are persistent in fields in Lexington.

The summer of 1898 was peculiar in the presence of species not formerly noted. \*Geranium pusillum, L., came up abundantly in lawns where no new seed had been added. \*Valeriana officinalis, L., came up in several patches outside the cemetery in Lincoln, and \*Silybum marianum, Gaertn., in a garden which, in other years, had produced Viola cornuta, L., and \*Cleome spinosa, Jacq. None of these were planted, possibly the seeds were introduced in dressing.

Oxalis violacea, L., is quite plentiful on Mount Tabor, Lincoln.

Tephrosia Virginiana, Pers., "not reported in the eastern towns," grows in North Lexington. This is a new station also for Genista tinctoria, L.

Vicia tetrasperma, L., was found sparingly on dumps.

Poterium Canadense, Benth. & Hook., is sufficiently plentiful in Bedford to add a question-mark to the "scarce" of the Flora.

Potentilla recta, Willd., reported as scarcely established in Concord, has spread from the original station on Monument street to the other end of the town, where it has been found in different places in the fields of the Concord golf course.

The naturalization of *Trapa natans*, L., in the Concord River is so complete that it has become a nuisance and has to be weeded out of the Sudbury River above its junction with the Assabet, and far above the station where it was planted by Minot Pratt. I wonder that no

enterprising boy has turned it to account by gathering and selling the nuts. They are very popular with children in Austria.

\*Epilobium lineare, Muhl., var. oliganthum, Trelease, was found in Tophet Swamp, North Lexington.

Oenothera biennis, L., var. grandiflora, Lindl., persists in Lexington, the only remnant of an old garden.

Lythrum Salicaria, L., is abundant in a field in Bedford.

Aster infirmus, Michx., was found in woods near the railroad in Lexington, and a white variety of A. Novae-Angliae, L., in Woburn.

Arctium Lappa, L., var. majus, Gray, is common on Bedford street, Lexington.

Plantago Patagonica, Jacq., var. aristata, Gray, introduced with grass-seed, is only too well established.

Hottonia inflata, Ell., "not reported outside the Middlesex Fells," grows by the Concord turnpike.

Utricularia intermedia, Hayne, grows in Tophet Swamp, North Lexington, and U. gibba, L., in Winter Pond, Winchester.

Epiphegus Virginiana, Bart., is abundant in North Lexington and Lincoln.

Gratiola Virginiana, L., is in Shaker Glen.

\*Pentstemon laevigatus, Sol., var. digitalis, Gray, occurs in several places in Lexington.

Pycnanthemum lanceolatum, Pursh, grows in Bedford.

Symphytum asperrimum, Sims, is well established near Munroe Station.

Lithospermum arvense, L., Echinospermum Lappula, Lehm., and Solanum nigrum, L., are new to Lexington, and \*Polygonum Virginianum, L., on the old Concord road is new to the Flora.

\*Polygonum lapathifolium, L., grows about the new Cambridge reservoir.

The Endogens do not furnish many additions to the Flora. This is partly due to the fact that the studies on which these notes are based were not carried into the field of rushes, sedges, and grasses.

Sagittaria graminea, Michx., from Winter Pond, and Pogonia verticillata, Nutt., in N. Lexington, are the only additions to stations of endogens.

The work of converting a large area of meadow land in Lexington, Lincoln, and Waltham into a reservoir to supply the city of Cambridge, has led to an upheaval of territory which, we believe, will repay careful watching.

# FUNGI IN GREENHOUSES.

#### HOLLIS WEBSTER.

That opportunities for collecting species of fleshy fungi are not ended with the setting in of winter will be evident to any one who undertakes periodical visits to greenhouses within reach. There, under glass, where summer and spring conditions are held captive, or made to order by florist and market-gardener, agarics, polypores and sometimes puffballs show themselves at intervals, sometimes in such force as to prove unwelcome guests. That the species are often the familiar ones of the region is to be expected, though the forms they take are occasionally somewhat novel in unimportant points. But there are also to be found, occasionally, species not to be met with elsewhere, stray representatives of the flora of other zones and countries brought in with imported earth.

An examination of the pages of Stevenson's British Fungi, or of Cooke's Handbook, will show that not a few so-called British species are known in Britain only from their occurrence in "stoves" or hothouses. Some of these, described from collections originally made in such places, have later been discovered in their native habitats, perhaps in Australia or Ceylon, but others are still known only as regular or sporadic intruders in pots and beds in hothouses. Among them are species often of great delicacy and beauty, while others have a more purely botanical interest.

A few notes of a recent visit to some greenhouses near Cambridge are here given.

In the first house entered a crop of lettuce, the third of the season, was being harvested, and at the same time men were making over the ground for the next planting. An inquiry of the foreman for signs of toadstools brought an interested smile to his face, and he at once led us to a spot from which, as he said, the men had thrown out a bushel shortly before. A few were left, and these on examination turned out to be *Tricholoma sordidum*, Fr., not an uncommon species, but showing here great depth and freshness of color, which did not wholly survive the trip home. In another house, also among lettuce plants, on a high bench, was a great display of *Peziza vesiculosa*, Bull., in all stages, from the unopened globular young forms to the fully developed, crowded, irregular fruits, as big as small coffee cups. The owner, who was escorting us, remarked that he hoped to get rid of

these things by treating the earth before each planting to a long soaking in water as nearly boiling hot as he could get it through the hose from his boilers. He had already tried the experiment on another bed with some success. As the Peziza fruits were in fine condition and unusually clean and bright for this species, a quantity was taken for preservation in formalin as class material. In beds near by, a few wilted Coprinus stalks were here and there visible, showing by their headless, inky condition, that it was late in the day. Beside the manure heap, however, outside in the cold, though somewhat sheltered by boards, was an abundant crop of what was probably the same species, Coprinus fimetarius (L.) Fr., pushing hardily up into the March wind, in some cases actually through the snow. An inch below the surface were masses of it, still unexpanded and with short stems, waiting only the slightest encouragement to appear in force. Another house offered for exploration long beds of parsley. The crop of leaves was thick, just ready for the market, and some square yards of the bed were already stripped, showing the rows of bare stems a few inches high left standing for another growth. Search here revealed an attractive little reddish brown Peziza with expanded shallow cups a few lines across, seated apparently on the surface. Appearances were deceptive, however, for every cup was attached to a dark slender stem, sometimes a line, sometimes an inch or more in length, reaching down into the soil, where it sprung from an irregular blackish grain or lump, that looked like a bit of hardened earth—a sclerotium. Search showed this Peziza in some abundance, particularly in parts of the bed where the parsley was diseased or dead. In the latter case sclerotia were found often in quantities in and upon the remains of the underground part of the plants. Some of these sclerotia bore from twenty to forty fruits (apothecia). The species was submitted for determination to Dr. W. G. Farlow who writes that it is "Sclerotinia sclerotiorum (Libert), in very good condition. Rehm speaks of the apothecia as generally solitary, but in the original specimen of Libert they are clustered just as in your plant, and the microscopic characters agree in all respects with the description. S. sclerotiorum also occurs on other Umbelliserae, and in its conidial form is frequent in greenhouses, but its ascosporic form is not often seen."

# OXYTROPIS CAMPESTRIS IN NORTHEASTERN AMERICA.

#### M. L. FERNALD.

For many years the handsome Oxytropis, which in June colors, with its rosy flowers, miles of gravelly shore along the upper St. John river, has been poorly understood by American systematists. This is due, in part, to the fact that the plant is scarcely known to the botanists of northeastern America except from the too little visited St. John valley, and from the region about Quebec; and, in part, because those to whom the plant has been familiar have hardly realized the necessity of securing for study more complete material than is found in our herbaria.

During the past June it was the rare fortune of the author to spend some days in the St. John valley; and there, upon the gravelly delta formed at Fort Kent, at the junction of the Fish river with the St. John, was found this Oxytropis in the height of its season, with beautiful fresh rose-colored flowers, older faded bluish ones, and fairly developed pods on the same plant. Most of the plants bore about a score of spikes upon peduncles varying from 2 to 4 dm. in height; but plants with as many as sixty spikes were not exceptional.

This species was first reported, apparently, in Hooker's Flora Boreali-Americana where he treats Canadian specimens (from Lady Dalhousie, Mrs. Percival, and Mrs. Shepard) — presumably from Isle d'Orleans near Quebec — as a form of O. Lamberti (O. Lamberti  $\alpha^{1}$ ), stating that they closely resembled standard figures of that species. In 1838, Torrey and Gray treated the Quebec plant (from Mrs. Percival) likewise as a form of O. Lamberti, though with some apparent hesitation (O. Lamberti  $\delta ?^2$ ).

The St. John river plant, seemingly identical with that collected on Isle d'Orleans by Mrs. Shepard, Professor Brunet and others, was first detected during the survey of the "wild lands" of Maine, by Professor Goodale. Specimens of the fruiting plant were sent to Dr. Gray who wrote, "This seems to be near O. Lamberti, var. d., Tor. and Gray. However, I have a fancy that it may be O. Uralensis." Later the plant was said to agree "pretty well with O. Uralensis, L., var. b," an arctic plant.

<sup>1</sup> Hook. Fl. Bor.-Am. i. 147. 2 Torr. & Gr. Fl. i. 339.

<sup>3</sup> Goodale in Prelim. Rep. Nat. Hist. & Geol. Me. (1861), 366.

<sup>4</sup> Goodale, l. c. (1862) 125.

In his early treatment <sup>1</sup> of the genus, however, Dr. Gray placed the St. John valley plant, as well as Labrador specimens, under the European O. campestris, DC., with "flores lutescentes, violaceo suffusi vel picti, rarius caerulei"; but, as Professor Goodale's specimens were in over-ripe fruit, the description of the flowers (so far, at least, as the Maine plant was concerned) was doubtless based upon the common yellow O. campestris of Europe. In reality, the flowers of specimens from the region whence Professor Goodale brought his fruiting plants are, as stated, bright rose-colored (the color of Hedysarum boreale or nearly that of Desmodium canadense), but in the dried specimens they fade to blue. Though he here referred the Maine plant to De Candolle's species Dr. Gray noted a slight difference, in the legumes, between the Maine specimens and those from Europe.

In his later treatment of the group, however, in 1884, the Maine and Quebec plants, and likewise those from Labrador, were referred by Dr. Gray 2 to O. campestris, DC., var. caerulea, Koch, it being stated that the corollas are generally blue, or blue and white, as in that European form. In the Labrador plant, nevertheless, Dr. Gray found the "slight introflexion of the dorsal suture" which he had previously noted in European specimens, but had found wanting in those from Maine. Under the name O. campestris, DC., var. caerulea the Maine and Labrador plants were taken up by Dr. Watson in the sixth edition of the Manual; but, in the Illustrated Flora, Professor Britton has united all the Maine (and with it New Brunswick) Quebec and Labrador material as O. campestris, DC. (Spiesia campestris, Kuntze), giving the colors "white, yellowish white, or blue," as in the two European forms.

Color alone is an unsafe criterion for the distinction of species, or even varieties, especially in such a group as Oxytropis; but to one familiar with European figures of the yellow-flowered O. campestris there is little in the rose-colored flowers of the St. John valley plant to suggest specific identity. In size, too, the Maine plant so far exceeds European specimens of either O. campestris or its variety caerulea, that one hesitates at first sight to place the plants together. The Maine plant is so tall that, in 1893, after being compared with authentic specimens of O. campestris (at most 2 dm. high, with fruiting spikes 4 or 5 cm. long) and its smaller variety caerulea, the St. John river plant (4 to 5 dm. tall, with fruiting spikes 10 to 12 cm. long) was

<sup>&</sup>lt;sup>1</sup> Gray, Proc. Am. Acad. vi. 235. <sup>2</sup> Proc. Amer. Acad. xx. 6. <sup>3</sup> l. c. vi. 236.

identified, with slight hesitation, with large specimens of the western O. Lamberti, Pursh, var. sericea, Gray.

Hundreds of specimens recently collected or examined in the St. John and Aroostook valleys show conclusively, however, that the large eastern plant cannot be referred to any form of O. Lamberti. In its longer thin slightly silky or glabrate leaves, closely flowered spikes, and especially in the thin papery texture of the legumes, the northeastern plant is well distinguished from the more western species with its thickish densely silvery-silky leaves, loosely-flowered spikes, and firm coriaceous legumes. In fact, the leaves and dense spikes, though large, are not unlike the general type found in the forms of O. campestris; and in their thin papery texture the legumes are certainly very like that species, with which for some years it has generally been associated. That it is, however, neither the true O. campestris nor its var. caerulea has already been sufficiently emphasized. Apparently no other form has been described which includes this attractive plant, and little hesitation is felt in proposing for it a new varietal name by which it may hereafter be distinguished from the overcrowded forms with which it has been confused.

Although this large plant of the St. Lawrence and St. John valleys is clearly different from Oxytropis campestris and its variety caerulea, its confusion with the latter form has been a natural one, for the larger plant has been represented in our herbaria only by scanty fruiting material. As already stated, however, Dr. Gray, in commenting upon the American plants, noted a slight difference between the legumes of the Maine specimens and those from Europe; and later he found in the Labrador specimens the same "slight introflexion of the dorsal suture" which he had already mentioned in the European plant. Notwithstanding this slight difference in the legumes, Dr. Gray then treated the Maine and Labrador plants as one form. The more southern rosyflowered plant has been already sufficiently discussed. Judging from descriptions, the Labrador plant, on the other hand, referred by him to O. campestris, var. caerulea, does not differ appreciably from that European variety.

The two northeastern forms may be characterized as follows: —

OXYTROPIS CAMPESTRIS, DC., var. CAERULEA, Koch. Perennial from a stout multicipital caudex: leaves 3 to 15 cm. long; the 15 to 23 thin more or less sericeous or glabrate elliptic-oblong to linear-lanceolate leaflets generally 1 cm. (rarely 13 mm.) or less long: peduncles .5 to

2 dm. high, with appressed or slightly spreading pale and slightly nigrescent pubescence: spike short, subcapitate, with 3 to 10 blue or blue and white flowers: calyx with nigrescent hairs amongst the subappressed paler ones: legume of thin papery texture, oblong or ovoid, long-acuminate, 15 to 18 mm. long, with appressed nigrescent and pale hairs; the dorsal suture with a slight intrusion. — Synop. 181; Gray, Proc. Am. Acad. xx. 6, as to Labrador plant; Wats. & Coult. in Gray, Man. ed. 6, 137, in part. O. campestris, Gray, Proc. Am. Acad. vi. 235, in part, not DC. Spiesia campestris, Britton & Brown, Ill. Fl. ii. 308, as to Labrador and Hudson bay plant, not Kuntze. — In America known only from Labrador and the region of Hudson strait: barren hilltop, Square Island, Labrador, Aug. 16, 1882 (F. A. Allen, no. 37); Red Bay, July 12, 1891, Battle Harbor, July 18, 1891, Indian Harbor, Hamilton Inlet, August 2, 1891 (Bowdoin College Exped. nos. 23, 91, 178); Nain, August 11, 1897, Rama, August 20-24, 1897 (J. D. Sornborger, nos. 33, 34); Cape Chudleigh, August 5, 1884 (R. Bell); Ungava Bay, 1884 (L. M. Turner); Fort Chimo, September, 1896 (A. P. Low in Herb. Geol. Surv. Can. no. 16,300).

Var. Johannensis. Much larger throughout: leaves in well developed plants 2 dm. (becoming nearly 3 dm.) long; leaflets mostly larger, in maturity 2 or 3 cm. long: peduncles abundant (occasionally as many as 60), 1.5 to 3.5 dm long: spikes with about 12 rose-colored (rarely white) flowers, drying bluish; in fruit becoming 5 to 12 cm. long: legumes 2 to 2.5 cm. long, with a less apparent internal projection of the dorsal suture. — O. Lamberti a, Hook. Fl. Bor.-Am. i. 147 (excluding cited figures). O. Lamberti δ?, Torr. & Gray, Fl. i. 339; Gray, acc. to Goodale in Prelim. Rep. Nat. Hist. & Geol. Me. (1861) 366. O. Lamberti, var. sericea, Fernald in Hay, Bull. Nat. Hist. Soc. N. B. xii. 69 & Proc. Portl. Soc. Nat. Hist. ii. 79; not Gray. O. Uralensis \beta, Gray, acc. to Goodale, l. c. (1862) 125, not Torr. & Gray. O. campestris, Gray, Proc. Am. Acad. vi. 235, as to Maine plant & Man. ed. 5, 133, not DC. O. campestris, var. caerulea, Gray, Proc. Am. Acad. xx. 6, in part (Northern Maine & Lower Canada); Wats. & Coult. in Gray, Man. ed. 6, 137, in part; not Koch. Spiesia campestris, Britton & Brown, Ill. Fl. ii. 308, in part (Quebec, Maine and New Brunswick), not Kuntze. — A handsome plant, flowering in June and early July, often abundant on the gravelly river-beaches of the St. John and its tributaries in northern Maine and New Brunswick; also on the Restigouche, and long known from the St. Lawrence valley near Quebec. Specimens examined: Isle d'Orleans, below Quebec (Mrs. Shepard, Prof. Brunet); on the St. John near Seven Islands, Maine, 1861 (G. L. Goodale); Fort Kent, Maine, 1881 (Kate Furbish); in great abundance on the Fish River delta, Fort Kent, June 15, 1898 (M. L. Fernald, no. 2289); Grand Isle, Maine, June 20, 1898 (M. L. Fernald, no. 2290); Van Buren, Maine, July 21, 1893 (M. L. Fernald, no. 25); by the Aroostook river, Caribou, 1880 (Kate Fur-